STUDENT ENGAGEMENT, STUDENT INTERACTIONS AND 'QUALITY OF USE' IN BLENDED LEARNING USING FLIPPED CLASSROOM

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ABSTRACT

The research of blended learning using flipped classroom is still at the early stage, hence the fundamental issues still unclear. Therefore, this study has examined the quality of use, by incorporating the quality constructs for entrepreneurship education. The framework was developed base on 'Quality of Use' Model underpinned by Luhmann's System Theory, Model of Online Learning and Social Learning Theory: Groups Nets and Sets. There were five variables tested in this study, namely satisfaction, efficiency, effectiveness, student interactions and student engagement. This study was conducted in two phases, firstly this study examined whether blended learning provide impacts on the studied variables. Later this study tested the relationship between variables based on the research framework. Data for the first stage were obtained through quasi-experimental among 90 students of entrepreneurship education for the Semester 20154 in the Universiti Teknologi MARA Perlis. The results reveals that there were significant differences between treatment group and control group for all variables tested. Data for the second stage were collected through a self-administered survey questionnaires among 281 students of entrepreneurship education for Semester 20162 in the same university. This result reveals that student interactions have a significant relationship with satisfaction, efficiency, effectiveness. However, student engagement exhibits a significant influence to satisfaction, but insignificant influence to efficiency and effectiveness. Further analysis reveals that student interactions provides a partial mediation between student engagement and satisfaction and full mediation between student engagement and efficiency, as well as effectiveness. This study contributes to the development of quality framework for large enrollment in flipped classroom, a multi-method of data collection to ensure the appropriateness of variables selected, and a quality measure of blended learning in entrepreneurship education, as well as business management disciplines. Conclusions, limitation and suggestions for future studies are also highlighted.

Keywords: Quality of Use, blended learning, flipped classroom, entrepreneurship education, quasi-experimental.

ABSTRAK

Penyelidikan berkaitan pembelajaran gabungan menggunakan kaedah *flipped classroom* masih di peringkat awal, menyebabkan isu-isu asas seperti kerangka kualiti perlu di kaji secara berterusan. Untuk itu, kajian ini dijalankan bagi mendalami kualiti penggunaan melalui pembolehubah kualiti di dalam kontek pendidikan keusahawanan. Kajian dijalankan berasaskan Model 'Kualiti Penggunaan' dan disokong oleh Sistem Teori Luhman, Model Pmebelajaran atas Talian dan Teori Pembelajaran Sosial: Kumpulan Rangkaian dan Set Lima pembolehubah telah dikaji iaitu kadar puashati, efisyen, keberkesanan, interaksi pelajar dan penglibatan pelajar. Kajian ini dijalankan dalam dua fasa, di mana fasa pertama ialah untuk memastikan pembelajaran gabungan memberi kesan kepada pemboleh-pembolehubah yang dikaji dan fasa kedua ialah untuk menguji hubungan antara pembolehubah mengikut kerangka kajian. Fasa pertama menggunakan kuasi eksperimen yang melibatkan 90 pelajar asas keusahawanan bagi Semester 20154 di Universiti Teknologi MARA Perlis. Dapatan kajian menunjukkan terdapat perbezaan yang signifikan di antara kumpulan rawatan dengan kumpulan kawalan untuk semua pembolehubah kajian. Manakala data untuk fasa kedua dikumpul melalui kaedah bancian soalselidik kendiri yang melibatkan 281 pelajar asas keusahawanan bagi Semester 20162 di universiti yang sama. Dapatan kajian menunjukkan interaksi pelajar mempunyai hubungan yang signifikan di antara pembolehubah 'kualiti penggunaan' (kadar puashati, efisyen, keberkesanan). Demikian juga, penglibatan pelajar mempunyai hubungan yang signifikan dengan kadar puashati, tetapi tidak menunjukkan hubungan yang signifikan dengan pembolehubah efisyen dan keberkesanan. Analisis lanjutan menunjukkan interaksi pelajar menjadi pengantara separa di antara penglibatan pelajar dengan kadar puashati dan pengantara penuh di antara penglibatan pelajar dengan efisyen serta keberkesanan. Kajian ini menyumbang kepada pembangunan kerangka kualiti *flipped classroom* berskala besar menggunakan konsep kualiti penggunaan, menggunakan kaedah berperingkat pengumpulan data bagi memastikan ketepatan penggunaan pembolehubah-pembolehubah kajian, serta pengukuran kualiti *flipped classroom* dalam kontek pembelajaran asas keusahawanan khususnya, dan disiplin pengurusan perniagaan umumnya. Kajian ini juga turut membincangkan batasan kajian dan cadangan untuk kajian masa hadapan.

Keywords: 'Kualiti penggunaan', pembelajaran gabungan, *flipped classroom*, kuasi-eksperimen.

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LIST OF ABBREVIATIONS

ENT300	Fundamentals of Entrepreneurships
UiTM (Perlis)	Universiti Teknologi MARA (Perlis), Malaysia
MOHE	Ministry of Higher Education, Malaysia
OBE	Outcome Based Education
SCL	Student Centered Learning
MQA	Malaysian Qualification Agency
PSPTN	Pelan Strategik Pengajian Tinggi Negara (National Higher Education Strategic Plan)
MEIPTA	Majlis e-Pembelajaran IPTA Malaysia
MOE	Ministry of Education, Malaysia
ICU-JPM	Implementation Coordination Unit- Prime Minister's Office
TVET	Technical Vocational Education and Training
MOOC	Massive Open Online Courses
PO	Program Outcome
LO	Learning Outcome
CO	Course Outcome
SLT	Student Learning Time
ISO	International Organization for Standardization
ICT	Information Communication Technology
IS	Information System
SOW	Scheme of Work
i-CREATE	Instructional Model for ENT300 in UiTM (Perlis)
LMS	Learning Management System

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Electronic learning or e-learning, is widely use in various organizations including higher learning institutions or universities. Statistics by Docebo (2016) reported that e-learning market will continue to grow approximately 5% yearly between 2016 and 2023, with expected revenue exceeding US 240 billion in 2024. Moreover, Asia region was reported as the second highest expenditure related to e-learning products and services after North America. The report further highlights that subjects related with business and management contribute 16.8%, the highest percentage of course distribution in e-learning (Docebo, 2016). Report by Docebo (2016) also pulled together insights from various sources and pointed out that among some important characteristics in the future e-learning are social learning (collaborative tools, virtual classroom and content management), personalized learning, and micro learning (bit-sized content). These characteristics also align with the online learning trends for 2017 that predicted efficiency, measures of usability, virtual classroom, personalized and micro learning as important factors that require more attention by institutions that offer blended learning in their teaching and learning activities (Black, 2017).

Furthermore, in the universities, it is known that e-learning provides benefits not only to the institutions, but also to the students and faculties. Study conducted by Education Centre for Analysis and Research (ECAR) in 2013 found that e-learning offers benefits of growth in enrolment, increases revenue, enhance the reputation of the institutions

The contents of the thesis is for internal user only

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LIST OF APPENDIX

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APPENDIX A
Measurement

QUALITY OF USE MEASUREMENT IN BLENDED LEARNING USING FLIPPED CLASSROOM

SECTION A: BACKGROUND INFORMATION

Student ID : _____

Student's Name : _____

Gender : _____

Age : _____ years old

Program (eg AC110) : _____

ENT300 Group (eg RAC1105A) : _____

ENT300 Lecturer : _____

Final Grade ENT300 : _____ (Please leave blank)

SECTION B: 'QUALITY OF USE' WITH ENT300 CLASS

B1	SATISFACTION	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
1	Overall, I am satisfied with this ENT300class	1	2	3	4	5	6
2	ENT300 course contributed to my educational development	1	2	3	4	5	6
3	ENT300 course contributed to my professional development	1	2	3	4	5	6
4	I am satisfied with the level of interaction that happened in ENT300 course	1	2	3	4	5	6
5	In the future, I would be willing to take a blended learning course again	1	2	3	4	5	6

B2	EFFICIENCY	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
1	ENT300 flipped classroom saves my time preparing my assignments	1	2	3	4	5	6
2	ENT300 flipped classroom reduce mistakes I made in preparing my assignments	1	2	3	4	5	6
3	Flipped classroom improve my understanding of ENT300	1	2	3	4	5	6
4	Flipped classroom enhance my knowledge related to ENT300	1	2	3	4	5	6

B3	EFFECTIVENESS	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
1	Flipped classroom allow me to complete tasks related to ENT300	1	2	3	4	5	6
2	I believe I became more productive in flipped classroom for ENT300	1	2	3	4	5	6
3	It is easy for me to adapt to flipped classroom for ENT300	1	2	3	4	5	6
4	Flipped classroom meets my study requirements for ENT300	1	2	3	4	5	6

SECTION C: INTERACTIONS WITH ENT300 CLASS

C1	STUDENT-STUDENT INTERACTIONS	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
1	Overall, I had numerous interactions related ENT300 content with fellow students.	1	2	3	4	5	6
2	I got lots of feedback related to ENT300 course from my classmates.	1	2	3	4	5	6
3	I communicated with my classmates about ENT300 course contents through various applications (mobile application, social site network, instant messaging tools, etc.)	1	2	3	4	5	6

C1	STUDENT-STUDENT INTERACTIONS	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
4	I answered questions of my classmates about ENT300 course content through various applications (mobile application, social site network, instant messaging tools, etc.)	1	2	3	4	5	6
5	I shared my thoughts or ideas about the lectures and its application with other students during ENT300 class	1	2	3	4	5	6
6	I comment on other friend's thoughts and ideas in ENT300 class	1	2	3	4	5	6
7	ENT300 assignments led to interactions with my classmates.	1	2	3	4	5	6

C2	STUDENT-INSTRUCTOR INTERACTIONS	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
1	I had numerous interactions with the instructor during ENT300 class	1	2	3	4	5	6
2	I asked the instructor my questions related to ENT300 contents through various applications (mobile application, social site network, instant messaging tools, etc.)	1	2	3	4	5	6
3	The instructor replied my questions in a timely fashion	1	2	3	4	5	6
4	I replied to messages from the instructor through various applications (mobile application, social site network, instant messaging tools, etc.)	1	2	3	4	5	6
5	I received enough feedback from my instructor to complete my assignments when I needed it.	1	2	3	4	5	6

C3	STUDENT-CONTENT INTERACTIONS	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
1	Beside ENT300 module, online materials helped me to understand the ENT300 content better	1	2	3	4	5	6
2	Online materials stimulated my interest for this course	1	2	3	4	5	6
3	Online materials helped me to relate my personal experience to new concepts or new knowledge	1	2	3	4	5	6
4	It was easy for me to access the online materials.	1	2	3	4	5	6

SECTION D: STUDENT ENGAGEMENT WITH ENT300 CLASS

D	STUDENT ENGAGEMENT	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
1	I visit i-Learn multiple times a week to get access to the ENT300 online materials	1	2	3	4	5	6
2	I visit the instructor to discuss about ENT300 assignments	1	2	3	4	5	6
3	I partipate actively in ENT300 group discussions	1	2	3	4	5	6
4	I help my group members and my classmates related to the ENT300 assignments	1	2	3	4	5	6
5	Outside classroom, I engage with converstion about ENT300 with my instructiors through various applications (mobile application, social site network, instant messaging tools, etc.)	1	2	3	4	5	6
6	Outside classroom I actively communicate with my group members about ENT300 through various applications (mobile application, social site network, instant messaging tools, etc.)	1	2	3	4	5	6
7	Because of ENT300, I start to get to know other students in who enrolled this subject from other classes	1	2	3	4	5	6
8	Because of ENT300, I start to get to know other students in who enrolled this subject from other faculties	1	2	3	4	5	6

THANK YOU

APPENDIX B

Result for Stage 1 of Data Collection

Introduction

The result for the Stage 1 of the study consist of (1) descriptive analysis for items based on five constructs (satisfaction, efficiency, effectiveness, student interactions and student engagement) that belong to the blended learner group and web facilitated group,
(2) descriptive analysis for constructs and (3) independent t-test

Result 1a

Descriptive analysis for items based on five constructs (Satisfaction, Efficiency, Effectiveness, Student Interactions and Student Engagements) for blended learner group.

Descriptive Statistics

	N	Mean	Std. Deviation
Satisfaction1	43	5.58	.626
Satisfaction2	43	5.35	.720
Satisfaction3	43	5.19	.764
Satisfaction4	43	5.56	.666
Satisfaction5	43	5.14	.675
Efficiency1	43	5.23	.684
Efficiency2	43	5.28	.766
Efficiency3	43	5.09	.781
Efficiency4	43	5.26	.658
Effectiveness1	43	5.37	.578
Effectiveness2	43	5.05	.815
Effectiveness3	43	5.07	.737
Effectiveness4	43	5.05	.615
InteractSS1	43	5.53	.667
InteractSS2	43	5.49	.631
InteractSS3	43	5.58	.626
InteractSS4	43	5.35	.686
InteractSS5	43	5.05	.688
InteractSS6	43	4.86	.833
InteractSS7	43	5.42	.626
InteractSI1	43	5.42	.626
InteractSI2	43	5.47	.667
InteractSI3	43	5.35	.613
InteractSI4	43	5.09	.750
InteractSI5	43	5.58	.545
InteractSC1	43	5.44	.548
InteractSC2	43	5.14	.560
InteractSC3	43	5.19	.664
InteractSC4	43	5.16	.721

Descriptive Statistics

	N	Mean	Std. Deviation
SE Participation1	43	4.51	.827
SE Participation2	43	5.33	.680
SE Participation3	43	5.44	.629
SE Participation4	43	5.58	.545
SE Participation5	43	5.37	.725
SE Participation6	43	5.47	.631
SE Participation7	43	5.23	.782
SE Participation8	43	5.02	.771
Valid N (listwise)	43		

Result 1b

Descriptive analysis for items based on five constructs (Satisfaction, Efficiency, Effectiveness, Student Interactions and Student Engagements) for web facilitated group.

Descriptive Statistics

	N	Mean	Std. Deviation
Satisfaction1	48	4.73	1.233
Satisfaction2	48	4.98	.699
Satisfaction3	48	4.83	.753
Satisfaction4	48	4.85	.989
Satisfaction5	48	4.75	.863
Efficiency1	48	4.81	.762
Efficiency2	48	4.75	.758
Efficiency3	48	4.83	.859
Efficiency4	48	4.81	.842
Effectiveness1	48	4.94	.783
Effectiveness2	48	4.75	.729
Effectiveness3	48	4.65	.863
Effectiveness4	48	4.85	.684
InteractSS1	48	4.85	.714
InteractSS2	48	4.73	.765
InteractSS3	48	5.19	.790
InteractSS4	48	4.75	.812
InteractSS5	48	4.73	.792
InteractSS6	48	4.44	.712
InteractSS7	48	5.10	.627

Descriptive Statistics

	N	Mean	Std. Deviation
InteractSI1	48	4.77	.831
InteractSI2	48	4.67	.930
InteractSI3	48	4.60	.962
InteractSI4	48	4.63	.937
InteractSI5	48	4.92	.942
InteractSC1	48	4.67	.975
InteractSC2	48	4.69	.993
InteractSC3	48	4.73	.869
InteractSC4	48	4.65	1.021
SE Participation1	48	4.54	1.091
SE Participation2	48	4.92	.942
SE Participation3	48	5.23	.778
SE Participation4	48	5.31	.689
SE Participation5	48	5.00	.875
SE Participation6	48	5.08	.767
SE Participation7	48	4.92	.710
SE Participation8	48	4.75	.786
Valid N (listwise)	48		

Result 2

Descriptive analysis for constructs used in this study (Satisfaction, Efficiency, Effectiveness, Student Interactions and Student Engagement).

Group Statistics

	Type of Class	N	Mean	Std. Deviation	Std. Error Mean
Satisfaction	Blended Learner	43	5.3628	.48059	.07329
	Web Facilitated	48	4.8292	.69892	.10088
Efficiency	Blended Learner	43	5.2151	.54984	.08385
	Web Facilitated	48	4.8021	.69946	.10096
Effectiveness	Blended Learner	43	5.1337	.52991	.08081
	Web Facilitated	48	4.7969	.66974	.09667
Interactions	Blended Learner	43	5.3198	.36930	.05632
	Web Facilitated	48	4.7565	.58007	.08373
Engagement	Blended Learner	43	5.2442	.38086	.05808
	Web Facilitated	48	4.9688	.59614	.08605

Result 3

Independent t-test for blended learner and web facilitated group to test the impact of blended learning to five main constructs for the study (Satisfaction, Efficiency, Effectiveness, Student Interactions and Student Engagements).

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	df
Satisfaction	Equal variances assumed	5.533	.021	4.195	89
	Equal variances not assumed			4.280	83.634
Efficiency	Equal variances assumed	1.403	.239	3.106	89
	Equal variances not assumed			3.147	87.574
Effectiveness	Equal variances assumed	.807	.372	2.640	89
	Equal variances not assumed			2.673	87.709
Interactions	Equal variances assumed	11.427	.001	5.452	89
	Equal variances not assumed			5.582	80.672
Engagement	Equal variances assumed	5.204	.025	2.592	89
	Equal variances not assumed			2.653	80.812

Independent Samples Test

		t-test for Equality of Means		
		Sig. (2-tailed)	Mean Difference	Std. Error Difference
Satisfaction	Equal variances assumed	.000	.53362	.12720
	Equal variances not assumed	.000	.53362	.12469
Efficiency	Equal variances assumed	.003	.41303	.13297
	Equal variances not assumed	.002	.41303	.13124
Effectiveness	Equal variances assumed	.010	.33685	.12762
	Equal variances not assumed	.009	.33685	.12600
Interactions	Equal variances assumed	.000	.56326	.10330
	Equal variances not assumed	.000	.56326	.10090
Engagement	Equal variances assumed	.011	.27544	.10627
	Equal variances not assumed	.010	.27544	.10381

Independent Samples Test

		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
Satisfaction	Equal variances assumed	.28089	.78636
	Equal variances not assumed	.28564	.78160
Efficiency	Equal variances assumed	.14882	.67724
	Equal variances not assumed	.15221	.67386
Effectiveness	Equal variances assumed	.08327	.59042
	Equal variances not assumed	.08644	.58725
Interactions	Equal variances assumed	.35799	.76852
	Equal variances not assumed	.36248	.76404
Engagement	Equal variances assumed	.06429	.48658
	Equal variances not assumed	.06887	.48200

APPENDIX C

Result for Stage 2 of Data Collection

Introduction

The result for the Stage 2 of the study was conducted using SmartPLS. It consists of three main parts namely (1) Assessment of Measurement Model, (2) Assessment of Structural Model, and (3) Testing of Mediating Effects

1. Assessment of Measurement Model

1a. Assessment of Indicator Reliability

	EFC	EFV	Interaction	SAT	SC	SE	SI	SS
B11				0.771				
B12				0.852				
B13				0.817				
B14				0.723				
B15				0.751				
B21	0.795							
B22	0.868							
B23	0.875							
B24	0.858							
B31		0.807						
B32		0.872						
B33		0.882						
B34		0.888						
C11								0.791
C12								0.808
C13								0.784
C14								0.762
C15								0.768
C16								0.702
C21							0.767	
C22							0.805	
C23							0.836	
C24							0.862	
C25							0.766	
C31					0.871			
C32					0.909			
C33					0.890			
C34					0.831			

Continue

Continued

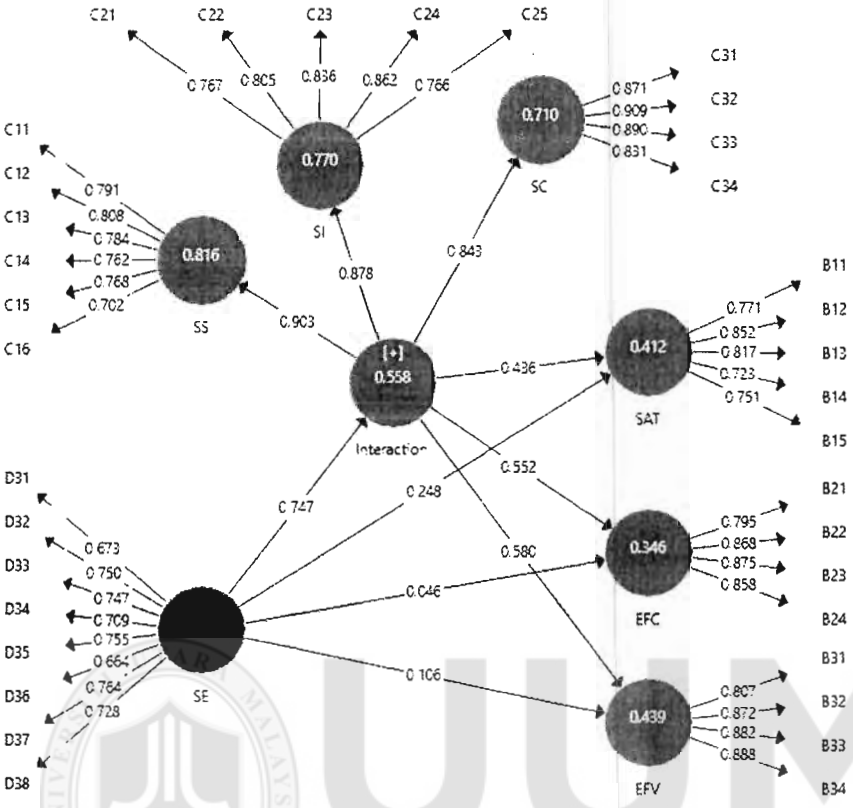
	EFC	EFV	Interaction	SAT	SC	SE	SI	SS
D31						0.673		
D32						0.750		
D33						0.747		
D34						0.709		
D35						0.755		
D36						0.664		
D37						0.764		
D38						0.728		

1b. Assessment of Internal Consistency Reliability

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
EFC	0.871	0.872	0.912	0.722
EFV	0.885	0.891	0.921	0.745
Interaction	0.930	0.931	0.939	0.506
SAT	0.843	0.847	0.888	0.615
SC	0.898	0.899	0.929	0.767
SE	0.870	0.874	0.898	0.525
SI	0.866	0.868	0.904	0.653
SS	0.862	0.863	0.897	0.593

1c. Assessment of Discriminant Validity

	EFC	EFV	Interaction	SAT	SE
EFC	0.850				
EFV	0.753	0.863			
Interaction	0.587	0.659	0.711		
SAT	0.529	0.589	0.621	0.784	
SE	0.459	0.539	0.747	0.573	0.724



2. Assessment of Structural Model

2a. Collinearity

	EFC	EFV	Interaction	SAT	SC	SE	SI	SS
EFC								
EFV								
Interaction	2.261	2.261		2.261	1		1	1
SAT								
SC								
SE	2.261	2.261	1	2.261				
SI								
SS								

2b. Coefficient of Determination (R^2)

	R Square	R Square Adjusted
EFC	0.346	0.341
EFV	0.439	0.435
Interaction	0.558	0.556
SAT	0.412	0.408
SC	0.710	0.709
SI	0.770	0.769
SS	0.816	0.815

2c. Path Coefficient

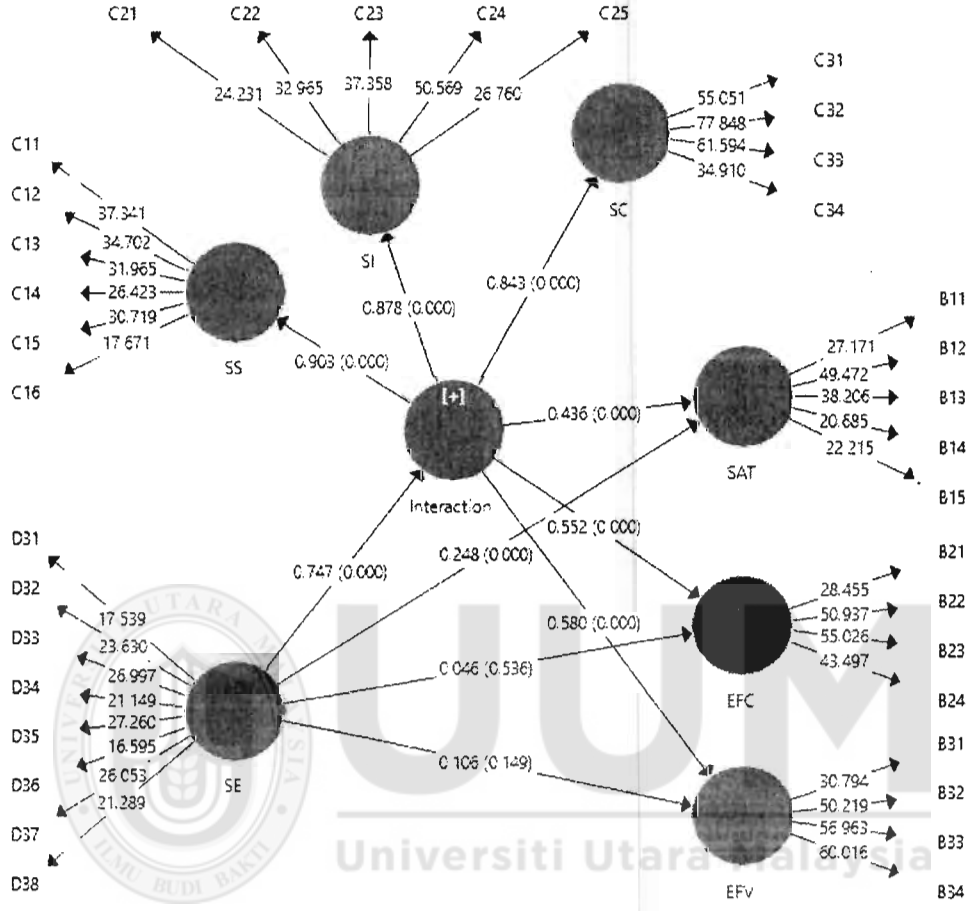
	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Interaction -> EFC	0.552	0.549	0.074	7.428	0.000
Interaction -> EFV	0.580	0.577	0.066	8.727	0.000
Interaction -> SAT	0.436	0.435	0.066	6.555	0.000
Interaction -> SC	0.843	0.844	0.020	43.190	0.000
Interaction -> SI	0.878	0.876	0.018	49.525	0.000
Interaction -> SS	0.903	0.905	0.013	71.290	0.000
SE -> EFC	0.046	0.053	0.075	0.619	0.536
SE -> EFV	0.106	0.109	0.073	1.447	0.149
SE -> Interaction	0.747	0.749	0.028	26.821	0.000
SE -> SAT	0.248	0.254	0.067	3.712	0.000

2d. Calculation of Effect size, f^2

	Exclude	all	R exclude	f squared	Decision
Satisfaction		0.414			
	SE		0.385	0.049	small
	SI		0.333	0.138	medium
Efficiency		0.346			
	SE		0.345	0.002	no effect
	SI		0.211	0.206	medium
Effectiveness		0.44			
	SE		0.434	0.011	small
	SI		0.295	0.259	medium

2e. Calculation of Effect size, q^2

	Exclude	Q all	Q exclude	q squared	Decision
Satisfaction		0.25			
	SE		0.234	0.021	small
	SI		0.198	0.069	small
Efficiency		0.246			
	SE		0.246	0.000	no effect
	SI		0.147	0.131	medium
Effectiveness		0.32			
	SE		0.319	0.001	no effect
	SI		0.21	0.162	medium



3. Mediating Effects

3a. Direct Effect

direct effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
SE -> EFC	0.459	0.464	0.050	9.091	0.000
SE -> EFV	0.540	0.543	0.046	11.646	0.000
SE -> SAT	0.574	0.575	0.045	12.768	0.000

3b. Indirect Effect

Indirect effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Interaction -> EFC					
Interaction -> EFV					
Interaction -> SAT					
Interaction -> SC					
Interaction -> SI					
Interaction -> SS					
SE -> EFC	0.413	0.414	0.049	8.387	0.000
SE -> EFV	0.433	0.435	0.052	8.296	0.000
SE -> Interaction					
SE -> SAT	0.325	0.332	0.052	6.204	0.000
SE -> SC	0.629	0.633	0.031	20.186	0.000
SE -> SI	0.655	0.659	0.031	21.326	0.000
SE -> SS	0.674	0.678	0.030	22.854	0.000

3c. Total Effect

total effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Interaction -> EFC	0.552	0.551	0.063	8.772	0.000
Interaction -> EFV	0.580	0.579	0.067	8.710	0.000
Interaction -> SAT	0.436	0.442	0.066	6.641	0.000
Interaction -> SC	0.843	0.843	0.020	42.612	0.000
Interaction -> SI	0.878	0.878	0.018	49.072	0.000
Interaction -> SS	0.903	0.903	0.012	73.271	0.000
SE -> EFC	0.459	0.465	0.048	9.535	0.000
SE -> EFV	0.539	0.544	0.045	11.889	0.000
SE -> Interaction	0.747	0.751	0.028	26.477	0.000
SE -> SAT	0.573	0.579	0.044	13.127	0.000
SE -> SC	0.629	0.633	0.031	20.186	0.000
SE -> SI	0.655	0.659	0.031	21.326	0.000
SE -> SS	0.674	0.678	0.030	22.854	0.000

APPENDIX D

Personal Communication with Nigel Baven
Expert in Usability, ISO 9241, ISO9126

Notifications

Updates **Messages** Requests

Different between 'Quality of Use' and 'Quality in Use'

Report message · Block user

Back to list

Inbox

Sent

Archive

Noraini Nasirun 9 days ago

Dear Sir

I am a PHD student from Universiti Utara Malaysia (UUM), Malaysia. I started my study in 2013 based on the concept of 'Quality of Use' you discussed in the article Usability is Quality of Use, and Measuring Usability as Quality of Use. However the concept more applicable to products.

For your information, my study related to developing a quality model for blended learning using flipped classroom technology. I used three main variables (satisfaction, efficiency and effectiveness) from 'Quality of Use' concept as the foundation of my model and added two variables related to blended learning environment.

Since I started my study until now, I fail to find any article that stated that 'Quality of Use' and 'Quality in Use' are the same concept, or is it different concept based on the context of use.

Once again, I wanted to thank you for the valuable insights you provided through your articles, and I hope to hear from you.

Warm regards,
Noraini NH

Nigel Bevan to you 9 days ago

Although the terms "quality of use" and "quality in use" have slightly different implications, they have been operationalised in the same way. (Quality of use could be seen as a user perspective, while quality in use is a product perspective.)

Note that the most recent concept is "human-centred quality" which explicitly identifies the potential importance of accessibility, user experience and avoidance of harm from use in addition to effectiveness, efficiency and satisfaction in normal use.

Noraini Nasirun 7 days ago

Noted. Thank you very much.

Unarchive conversation

APPENDIX E

Personal Communication with Darren Yearsley
Senior Media Librarian, CBC Broadcast Centre, Toronto

Gmail

Noraini Nasirun <norainasirun@gmail.com>

Permission to quote in print transcript for 'Disruptive Innovation' theory often misunderstood, says creator Clayton Christensen

3 messages

norainasirun@gmail.com <norainasirun@gmail.com> Thu, Nov 10, 2016 at 12:50 PM
To: "darren.yearsley@cbc.ca" <darren.yearsley@cbc.ca>
Bcc: norainasirun@gmail.com

Dear Sir/Madam

My name is Noraini and I am a PHD student from Universiti Utara Malaysia, Malaysia. I m currently pursuing my PHD study in flipped classroom. The are of my study underpinned by Disruptive Innovation Theory, hence I found that his transcript will give the insight to explain how the theory give an impact to teaching and learning. As for that, I would like to seek your permission to include part of transcript in my thesis.

Hope to hear from you soon. Thank you.

Sent from Mail for Windows 10

Darren Yearsley <darren.yearsley@cbc.ca> Fri, Nov 11, 2016 at 1:34 AM
To: norainasirun@gmail.com

Hello,
Thanks for your request.
Please proceed with use of the transcript.
Please note, this approval is for educational use only, should you need any further licensing please contact me directly.
Thanks,
Darren

Darren Yearsley
Senior Media Librarian
CBC Content Sales, Licensing Division
CBC Broadcast Centre
Room 6B210J,
205 Wellington St. W.
Toronto, Ont.
M5V 3G7
darren.yearsley@cbc.ca
[Quoted text hidden]

norainasirun <norainasirun@gmail.com> Fri, Nov 11, 2016 at 8:36 AM
To: Darren Yearsley <darren.yearsley@cbc.ca>

Noted. Thank you

Sent from my Samsung Galaxy smartphone.
[Quoted text hidden]

APPENDIX F

Notis Pemberitahuan Hak Cipta untuk I-FLIPP

Perbadanan Harta Intelek Malaysia
Intellectual Property Corporation of Malaysia
(Diperbadankan)
Unit 1-7 & Mezzanine, Unit 12, 12A, 13, 15, 16, 17, 18, dan 19
Tower B Menara UOA Bangsar, No. 5, Jalan Bangsar Utama 1
59100 Kuala Lumpur
Tel : +603-22998400 Faks: +603-2299 8989
Laman Sesawang : www.myipo.gov.my

LCR01

NORAINI NASIRUN @ HIRUN
FAKULTI PENGURUSAN PERNIAGAAN
BAHAGIAN HAL EHWAL AKADEMIK, BANGUNAN AL-FARABI 1
UNIVERSITI TEKNOLOGI MARA (PERLIS)
02600 ARAU
PERLIS

NOTIS PEMBERITAHUAN HAK CIPTA

(Seksyen 26B, Akta Hak Cipta 1987)

Tuan/Puan

Sukacita dimaklumkan, maklumat butiran Pemberitahuan Sukarela Hak Cipta tuan/puan telah direkodkan ke dalam Daftar Hak Cipta sebagaimana diperuntukkan di bawah Seksyen 26B, Akta Hak Cipta 1987. Butiran Pemberitahuan Hak Cipta tersebut dirujukkan seperti berikut:

TARIKH PERMOHONAN	:	**11/12/2015**
NO. PERMOHONAN	:	**LY2015002596**
NO. PEMBERITAHUAN	:	**CRLY00004451**
TAJUK KARYA	:	**INTERGRATES MEASUREMENT FOR FLIPPED CLASSROOM (I-FLIPP)**
KATEGORI KARYA	:	**SASTERA**
TARIKH PENERBITAN PERTAMA	:	**01/12/2015**
PENCIPTA	:	**NORAINI NASIRUN @ HIRUN** **SARINA BINTI MUHAMAD NOOR** **RUSHAMI ZIEN YUSOFF** **ABD AZIZ OTHMAN**
PEMUNYA	:	**UNIVERSITI UTARA MALAYSIA**
PEMEGANG LESEN	:	**TIDAK BERKAITAN**

Tuan/Puan boleh memohon Sijil Pemberitahuan Hak Cipta dengan mengemukakan Borang CR-5 seperti dikepilkan bersama. Pihak tuan/puan juga boleh memohon petikan yang diperakui sah daripada Daftar Hak Cipta yang boleh dijadikan satu keterangan *prima facie* mengenai butiran yang direkodkan.

Sukacita dimaklumkan juga, sekiranya terdapat sebarang perubahan maklumat sedia ada, pihak tuan/puan dinasihatkan kemukakan maklumat perubahan tersebut untuk direkodkan dalam Daftar Hak Cipta.

Sekian, terima kasih.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menurut perintah,

(MOHAMED FAIRUZ BIN MOHD PILUS)
b.p. Pengawal Hak Cipta
Perbadanan Harta Intelek Malaysia
Tarikh: 07/11/2016